

A Redescription of *Acanthoscelides aequalis* (Sharp)
(Coleoptera : Bruchidae)

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A recent study of the types of *Acanthoscelides* (*Bruchus*) *aequalis* Sharp has revealed that this species is one of several closely related species that are separated most readily by critical study of the male genitalia. These species are primarily Mexican in distribution but *A. aequalis* is found as far north as southern Texas. Sharp's original description is such that it is impossible to identify and distinguish between this species and those that are closely allied to it. A redescription and synonymy follows.

ACANTHOSCELIDES AEQUALIS (Sharp)

Bruchus aequalis Sharp, 1885: 481 (Mexico: Guanajuato, Toxpan); Schaeffer, 1907: 292, 304; Fall, 1910: 173; Pic, 1913: 13.

Mylabris aequalis: Leng, 1920: 305.

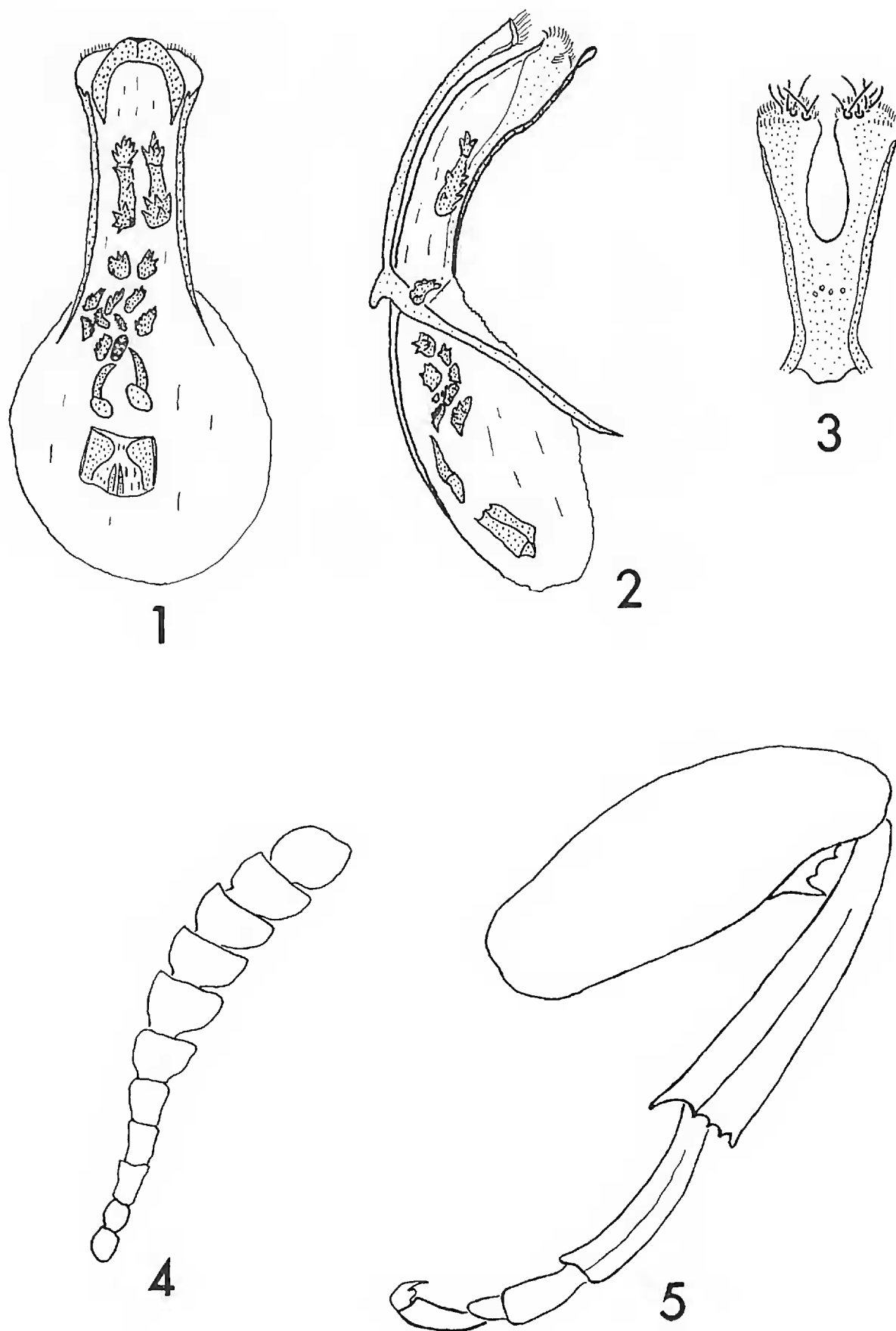
Acanthoscelides aequalis: Blackwelder, 1946: 758; Bridwell, 1952: 50 (host plants); Kingsolver, 1965: 128.

MALE.—*Integument Color.*—Head black, labrum red-orange; basal four antennal segments red-orange, apical seven dark brown; thorax and abdomen black; procoxa, basal one-third to one-half of meso- and metafemora and sometimes hind tarsus brown, remaining portions of legs red-orange or legs all red-orange except for procoxa.

Vestiture.—Body with white, golden, or intermixed white and golden recumbent pubescence; eye with medial fringe of sparse white hairs; postocular lobe with short white setae; postocular patch of dense white hairs; pronotum and elytron clothed with moderately dense white or golden pubescence; mesepimeron, mesepisternum, metasternum and metepimeron clothed with moderately dense white pubescence; metepisternum and lateral one-fifth to one-fourth of hind coxa dense white pubescent; abdominal sterna with uniform dense white pubescence; pygidium with dense white or intermixed white and golden pubescence.

Structure, Head.—Short and broad, densely punctulate; frons with median glabrous elevated line extending from frontoclypeal suture to vertex; usually vague transverse sulcus between upper limits of eyes; distance between eyes about as wide as eye width; eye cleft to two-thirds its width by a white pubescent vertical sulcus above antennal base; in lateral view venter of eye parallel with imaginary extension of line parallel with ventral surface of labium; antennal segment one filiform, two, three and four moniliform to filiform, four sometimes shorter than adjacent segments, five to ten usually serrate, eleventh subacute apically; five and eleven about as long as broad, six to ten about twice as broad as long (fig. 4); antenna reaching to humerus or slightly beyond.

Prothorax.—Disk campanulate; punctulate with many scattered coarser punc-



FIGS. 1-5. *A. aequalis*. FIGS. 1-3, male genitalia. FIG. 1. Ventral view median lobe and endophallus. FIG. 2. Lateral view median lobe, endophallus and parameres. FIG. 3. Ventral view parameres. FIG. 4. Male antenna. FIG. 5. Hind leg.

tures; narrow punctulate fringe at apex; short median impressed line on median basal lobe.

Meso- and Metathorax.—Scutellum black, quadrate, clothed with moderately dense to dense recumbent white or white and golden hairs; elytron slightly less than twice as long as broad; striae deep, punctate, strial intervals punctulate; distance between striae at base subequal; humerus punctulate, glabrous, shiny black; mesepimeron, mesepisternum, metasternum, metepimeron and hind coxa punctulate, metepisternum with some coarser punctures; hind femur constricted basally and apically, expanded medially to about width of coxa (fig. 5); ventral surface without carina, sometimes with three or four small acuminate teeth on inner ventral margin; femur armed with a subapical acuminate spine one to one and one-half times as long as width of tibial base and two acuminate spines about one-third as long as first spine; tibia with lateral and posteromedial glabrous longitudinal carinae; anterior carina obsolete, may be represented by a dark line; apex with three to four spinules, spine one-sixth or less as long as first tarsomere; without sinus at base of spine; first tarsomere with anterior glabrous longitudinal carina, usually lacks lateral and medial carinae.

Abdomen.—First sternum slightly flattened medially, posterior margin not convex, in a straight line, about as long as remaining sterna; sterna two to four unmodified, fifth emarginate; pygidium punctate, convex in lateral view.

Genitalia.—Figs. 1, 2, 3.

FEMALE.—Similar to male but last abdominal sternum subemarginate.

Length, Pronotum-Elytra.—1.2 to 1.6 mm.

Host Plants.—*Pseudabutilon lozani* (Rose): Mexico: Colonia, Anabuac, 14 May 1941 (Bibby & Morena).

Literature.—Malvaceae, Bridwell, 1952: 50.

Location of Type.—British Museum (Natural History).

Specimens Examined.—Ten, from the following localities: Texas: Cameron Co.: Brownsville: VI (Wickham). Mexico: Guanajuato: Guanajuato (Sallé). Sinaloa: 12 mi. W. Rosario, 30 January 1964, sweeping (P. M. Estes); 12 mi. N. Mazatlan, 28 August 1965 (C. D. Johnson). Veracruz: 29 mi. SE Jalapa, 900', 26 December 1963 (C. W. O'Brien); 27 mi. NW Veracruz, 300', 26 December 1963 (L. & C. W. O'Brien).

DISCUSSION.—On the basis of external structures, *A. aequalis* is probably more closely related to *Abutiloneus idoneus* Bridwell than to any other named United States form. Information given in this paper and by Kingsolver (1965) allows one to readily separate these two species. The male genitalia of the two species are quite distinct. *A. aequalis* male genitalia have a short median lobe with a gently rounded ventral valve (fig. 1); a distinctive curvature of the median lobe in lateral view (fig. 2); and parameres (fig. 3) which are very different from *A. idoneus*. As with most Nearctic Bruchidae, the endophallic armature with its characteristic hooks, spines, and spinules serve better to separate species than most any character of the male genitalia. In *A. aequalis* the presence of the nine to eleven small spines disposed medially in the endophallus separates this species from any known to me.

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LITERATURE CITED

- BLACKWELDER, R. E. 1946. Checklist of the Coleopterous insects of Mexico, Central America, the West Indies, and South America. Vol. 4. U. S. Nat. Mus. Bull., 185: 551-763.
- BRIDWELL, J. C. 1952. A new genus of Bruchidae affecting *Hibiscus* in Argentina (Bruchinae: Acanthoscelidini). J. Wash. Acad. Sci., 42: 49-50.
- FALL, H. C. 1910. Miscellaneous notes and descriptions of North American Coleoptera. Trans. Amer. Entomol. Soc., 36: 89-197.
- KINGSOLVER, J. M. 1965. On the genus *Abutiloneus* Bridwell (Coleoptera: Bruchidae). Coleopt. Bull., 19: 125-128.
- LENG, C. W. 1920. Catalogue of the Coleoptera of America North of Mexico. New York, 470 pp.
- PIC, M. 1913. Bruchidae. Junk, Coleopterorum Catalogus. pars 55, 74 pp.
- SCHAEFFER, C. F. A. 1907. New Bruchidae with notes on known species and list of species known to occur at Brownsville, Texas, and in the Huachuca Mountains, Arizona. Mus. Brooklyn Inst. Arts and Sci., Sci. Bull., 1: 291-306.
- SHARP, D. 1885. Bruchidae. Biol. Centrali-Americana, Coleoptera 5: 437-504, Tab. 36.

SCIENTIFIC NOTES

Two new parasites of the Douglas-fir gall midge, *Contarinia oregonensis* Foote (Diptera : Cecidomyiidae).¹—In 1966 a study of the insects infesting the cones and seeds of Douglas-fir, *Pseudotsuga menziesii* (Mirb.) Franco, was undertaken in the Santa Cruz Mountains of California. Only *Torymus* sp. (Hymenoptera : Torymidae) and *Platygaster* sp. nr. *americana* (Hymenoptera : Platygasteridae) (Koerber, 1960, U. S. For. and Range Expt. Sta. Tech. Paper, No. 5; Hedlin, 1961, Canad. Entomol., 93: 952-967) had been reported to parasitize *Contarinia oregonensis* Foote, the most destructive pest of the Douglas-fir seed crop (Johnson and Heikkinen, 1958, For. Sci., 4: 274-282; Koerber, 1960).

During this investigation *Torymus* sp., *Tetrastichus strobilus* Burks (Hymenoptera : Eulophidae) and *Zachalochlora milleri* Crawford (Hymenoptera : Ptero-

¹ From a thesis submitted to the graduate division of San Jose State College, San Jose, California, in partial fulfillment of the requirements of the M.A. degree in Biology, 1967.